

WHAT IS CLAIMED IS:

- 1 1. A process for the preparation of an epoxidation
2 catalyst, which process comprises impregnating a
3 silicon containing carrier with a gas stream
4 consisting of titanium halide.
- 1 2. The process of claim 1, wherein the silicon
2 containing carrier is a silica gel.
- 1 3. The process of claim 2, wherein the gas stream
2 consists of titanium tetrachloride.
- 1 4. The process of claim 2, wherein the silicon
2 containing carrier comprises at most 1200 ppm of
3 sodium, based on amount of carrier.
- 1 5. The process of claim 2, further comprising drying
2 the silicon containing carrier before
3 impregnation.
- 1 6. The process of claim 5, further comprising
2 calcining and subsequently hydrolyzing the
3 impregnated carrier to produce a calcined and
4 hydrolyzed carrier.
- 1 7. The process of claim 6, further comprising
2 contacting the hydrolyzed carrier with a
3 silylating agent.
- 1 8. The process of claim 1, wherein the gas stream
2 consists of titanium tetrachloride.
- 1 9. The process of claim 1, wherein the silicon
2 containing carrier comprises at most 1200 ppm of
3 sodium, based on amount of carrier.
- 1 10. The process of claim 1, wherein the silicon
2 containing carrier comprises particles with a
3 weight average particle size of at most 2 mm.
- 1 11. The process of claim 1, further comprising drying
2 the silicon containing carrier before
3 impregnation.

- 1 12. The process of claim 1, further comprising
2 calcining and subsequently hydrolyzing the
3 impregnated carrier to produce a calcined and
4 hydrolyzed carrier.
- 1 13. The process of claim 12, further comprising
2 contacting the hydrolyzed carrier with a
3 silylating agent.
- 1 14. The process of claim 13 wherein the silylating
2 agent comprises hexamethyldisilazane.
- 1 15. A process for the preparation of an alkylene
2 oxide which process comprises:
3 contacting a hydroperoxide and alkene with
4 a heterogeneous epoxidation catalyst; and,
5 withdrawing a product stream comprising
6 alkylene oxide and an alcohol and/or
7 water,
8 wherein the catalyst has been prepared by a
9 process comprising impregnating a silicon
10 containing carrier with a gas stream consisting of
11 titanium halide.
- 1 16. The process of claim 13, wherein the alkene is
2 propene and the alkylene oxide is propylene
3 oxide.
- 1 17. The process of claim 14, wherein the organic
2 hydroperoxide is ethylbenzene hydroperoxide and
3 in which the alcohol is 1-phenyl ethanol.
- 1 18. The process of claim 13, wherein the organic
2 hydroperoxide is ethylbenzene hydroperoxide and
3 in which the alcohol is 1-phenyl ethanol.
- 1 19. The process of claim 16, which process further
2 comprises dehydrating 1-phenylethanol to obtain
3 styrene.

1 20. The process of claim 16, wherein having
2 temperatures in the range of from 50°C to 140°C,
3 and pressures up to 80 bar.